

Table 1. Triticale vs. Oats Trials

| COOPER- ATOR | YEAR | TRITICALE TREATMENT | | | OAT TREATMENT |
|-----------------|-----------|-------------------------------------|----------------|-------------|----------------|
| | | DESCRIPTION | YIELD (bu.) | UNITS | DESCRIPTION |
| DORDT COLLEGE | 2003 | SPRING TRITICALE (Trimark 37812) | 91.3 | (BU.) | OAT |
| | | | 5,112 | (LBS GRAIN) | |
| | | | 1.88 | (T STRAW) | |
| MUGGE | 2003 | SPRING TRITICALE (Trimark 37812) | 67.1 | (BU.) | OATS ('JERRY') |
| | | | 3,670 | (LBS GRAIN) | |
| | | | 1.1 | (T STRAW) | |
| DORDT COLLEGE | 2004 | SPRING TRITICALE (Trimark 37812) | 59.3 | (BU.) | OAT |
| | | | 3,320 | (LBS GRAIN) | |
| | | | 0.73 | (T STRAW) | |
| MUGGE | 2004 | SPRING TRITICALE (Trimark 37812) | 53.2 | (BU.) | OAT |
| | | | 2,980 | (LBS GRAIN) | |
| | | | — | (T STRAW) | |
| MUGGE | 2003/2004 | FALL TRITICALE (NE 426GT) | 90.0 | (BU.) | |
| | | | 5,040 | (LBS GRAIN) | |

Oat prices: 2003, \$1.56; 2004, \$1.30. Triticale prices based on corn: 2003, \$2.05; 2004, \$2.10.

Triticale – A Step toward Diversity

Rick Exner

We often wish there were more alternatives to corn and soybeans. Often when we describe what we need, it sounds much like... corn and soybeans. A grain that can be sold at the local elevator. High yielding, etc. But any new crop that comes along will not enjoy the infrastructure or markets that have evolved with corn and beans. And a new crop won't have years of development behind it, as do the established crops. So how

can a potential alternative crop “get its foot in the door” of Midwest agriculture?

Producers might be willing to try a new crop if it filled a need on the farm and never had to leave the farm. Such a crop might be consumed by livestock, for example. One of the latest entries in the category is a cross of durum wheat and winter rye called “triticale.” (The common Iowa pronunciation seems to be “TRIT-ih-cale-ey,” but some regions make a three-syllable word out of it.) In the past few years, ISU agronomy professor Lance Gibson has evaluated this crop on two northwest Iowa PFI farms, that of Paul and Karen

Triticale vs. Oats Trials

| OAT TRT. | | DIFFERENCE | | | | COMMENT |
|----------|-------------|-------------|---------|----------|----------------------|---|
| YIELD | UNITS | YIELD DIFF. | YLD LSD | YLD SIG. | TRITICALE \$ BENEFIT | |
| 153.8 | (BU.) | -62.5 | 20.3 | * | -\$72.90 | OAT MARKET VALUE VS. TRITICALE PRICE BASED ON CORN |
| 4,922 | (LBS GRAIN) | | | | | ACTUAL GRAIN WEIGHTS ARE ALMOST THE SAME |
| 2.29 | (T STRAW) | 0.40 | 0.15 | * | | TRITICALE HAS GREATER FEED VALUE PER POUND |
| 121.5 | (BU.) | -54.4 | 11.3 | * | -\$69.07 | OAT MARKET VALUE VS. TRITICALE PRICE BASED ON CORN |
| 3,813 | (LBS GRAIN) | | | | | ACTUAL GRAIN WEIGHTS ARE ALMOST THE SAME |
| 1.4 | (T STRAW) | | | | | TRITICALE HAS GREATER FEED VALUE PER POUND |
| 153.4 | (BU.) | | | | -\$74.89 | OAT MARKET VALUE VS. TRITICALE PRICE BASED ON CORN |
| 4,909 | (LBS GRAIN) | -1,589 | 364 | * | | |
| 1.41 | (T STRAW) | -0.68 | | — | | TRITICALE HAS GREATER FEED VALUE PER POUND |
| 103.4 | (BU.) | | | | -\$22.70 | YIELDS WERE NOT STATISTICALLY DIFFERENT, SO THE ECONOMICS PROBABLY ACTUALLY FAVOR TRITICALE |
| 3,308 | (LBS GRAIN) | -328 | 1,074 | N.S. | | |
| — | (T STRAW) | | | — | | NO STRAW YIELDS COLLECTED |
| | | | | | | FALL VARIETIES YIELD BETTER THAN SPRING VARIETIES OF TRITICALE. SPRING VARIETIES ARE BETTER NURSE CROPS FOR FORAGE ESTABLISHMENT. |

Mugge, Sutherland, and the Dordt College Ag Stewardship Center, in Sioux Center.

As the crop's heritage suggests, this is a small grain. Like other small grains, triticale is good at scavenging nutrients left by previous crops, good at breaking up weed cycles, and helpful in evening out the cropping labor demands. Unlike oats, barley, and wheat, there isn't an established market for the grain. However, triticale is superior to most of the other small grains as a livestock feed. Its energy content is closer to corn than to oats. Like oats, it has a higher lysine content than corn, but its crude protein content, 12.5%, is higher than

The oat yield (in 32-lb bushels) was much greater, but the harvested weights were very similar to the triticale yields.

either corn or oats. Perhaps most importantly, the fiber content of triticale is less than half that of oats. The fiber in oats makes it a useful feed for young livestock, but it also makes it less efficient for use in growing/finishing animals. Finally, the phosphorus in triticale is utilized three times more





Paul Mugge welcomes the field day crowd.

efficiently than that in corn, reducing the potential for P buildup on the farm. Lance Gibson is helping to write a bulletin on feeding small grains, including triticale.

The Dordt College Agricultural Stewardship Center maintains a dairy herd, and Paul and Karen Mugge finish pigs. Both raise small grains for feed and as a nurse crop to establish forage or green manure crops. Older varieties of triticale were lower yielding, had lower test weight, did not stand well, sometimes contained feeding inhibitors, and were subject to the fungus that causes ergot. Recent work has improved these traits, and has led to varieties specifically for grain production or for forage. The variety that Dordt College and the Mugges grew is a spring variety (Trimark 37812) from Resource Seeds, in California. This is one of the few spring varieties with good ergot tolerance. (See Table 2 of varieties.)

In 2003, the Dordt College Agricultural Stewardship Center and Paul and Karen Mugge both compared triticale to oats (Table 1). In both cases, the oat yield (in 32-lb bushels) was much greater, but the harvested weights were very similar to the triticale yields. (Triticale test weight is now typically 56 pounds per bushel, the same as corn.) In 2004, the harvested weights were similar on the Mugge farm, while at the Ag Stewardship

Table 2. Triticale varieties with low ergot levels and good agronomic characteristics for grain production in Iowa triticale performance tests. (Courtesy of Lance Gibson.)

| Winter varieties | Spring varieties |
|-------------------------------|---------------------------------|
| Alzo ^a | AC Alta ^c |
| Décor ^a | AC William ^c |
| DANKO Presto ^a | Trical Brand 37812 ^d |
| Kitaro ^b | Trical Brand 46520 ^c |
| Lamberto ^b | Wapiti ^c |
| NE95T426 ^a | |
| Presto ^b | |
| Roughrider ^b | |
| Trical Brand 336 ^a | |
| Trical Brand 815 ^a | |
| Sorento ^b | |
| Vero ^b | |

^a Tested at 5 sites in 2002 and 2003
^b Tested at 5 sites in 2003
^c Tested at 3 sites in 2003
^d Tested at 3 sites in 2002 and 2003

Center the harvested weight of oats was significantly greater.

But yield was only one of the objectives. As mentioned, Trimark 37812 is a spring triticale. Spring triticale can serve as a nurse crop for spring-seeded forages, although it does not yield as well as fall triticale. In the fall of 2003, Paul Mugge seeded NE426GT, a variety of fall triticale developed at the University of Nebraska. The yield was 90 bushels per acre (5,040 lbs/acre), nearly double that of the spring triticale.

How do you place an economic value on triticale? There is no established market price for the crop. Lance Gibson suggests basing it on the value of corn. Table 1 shows both oat market prices and corn prices for the two years of the study. Besides that, pound-for-pound, triticale is a superior feed to oat. So for similar pound yields, a farmer in a position to feed these crops is better off with the triticale.

With continued work, triticale may “come in the back door” of Midwest agriculture, becoming less an alternative crop and more a standard option for producers who can utilize the feed and who like the idea of having another crop in the rotation. 🍷

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